A REPORT ON

SUGGESTED PROCEDURES

FOR

FORMAL TECHNICAL REPORTS

TO

ELECTRONIC TECHNICIAN STUDENTS

by

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Dear Student:

Attached is a survey of methods used for preparation of formal reports. I hope this material with its examples will be of some help as a source and a guide.

I have enjoyed preparing this report and shall be glad to give assistance in the future, either by questions or helping you get started with your first report.

Very truly yours

Hugh A. Young

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Summary

The report should contain with some variations the following:

1. Title Page
2. Letter of Transmittal
3. Table of Contents
4. Summary (or Abstract)
5. Introduction
6. Body
7. Conclusions (and Recommendations if nescessary)
8. Appendix (if necessary)
9. Bibliography or References

This report has followed the above procedure and can be used as one example of correct form. The appendix was omitted since the information in this report requires no tables or graphs.

To form the body of a report an outline must be developed. The outline helps to determine the main points, order of importance of topics, and the sequence of material to be presented.

Introduction

Purpose

For some time there has been a need for information to aid students in developing a skill for preparing formal technical reports. To relate information gathered is an ability that must be acquired. Lack of this skill will stop the individual from advancing on the job.

Variations exist in the different organizations where reports are necessary, but in general the main topics covered in this report represent the typical pattern.

Sources of Information

Sample reports used in industry were surveyed and a general pattern developed.

Textbooks on technical writing are few in number, but one valuable source of reference was found, Modern Technical Writing, by Theodore Sherman.

I am also indebted to the suggestions and help offered by the teaching staff of the Electronics Dept. of Los Angeles Trade Technical Junior College.

Authorization

Requested by the teaching staff of the Electronics Dept. of Los Angeles Trade Technical Junior College.

Need of Technical Writing Ability

In the field of communications the ability of an electronics technician consists of two main parts. First to be able to interpret and follow instructions. This includes an understanding of the procedures of the job to gain certain objectives or conclusions. Second, he must be able to pass on to others the results of his efforts.

Technical writing requires a definite attitude which many technicians lack. A good technician lacking this proficiency may find others advancing while he stays at the same level. To make complete use of an individual, his efforts must be passed on to other persons in a clear and concise form.

Mechanics

Style

A technical writing is directed to readers who have to some degree an interest in the subject matter. It avoids flashy and superficial phrases to gain interest. In a good report the reader's attention is held with its ability to give him the knowledge he wants clearly and easily.

Objectivity is maintained throughout the report. The writer should not let biased viewpoints, his own or others, make it subjective. To remain objective, state the results and facts accurately. An example of a subjective statement: "He can use a ladder for he is a fireman." This statement is subjective to an assumed fact that all firemen recieve training on the use of ladders. The statement based on facts would read objectively: "He can use a ladder for as a fireman he recieved 100 hours on their use."

Impersonality is generally the better style. The reader is not interested in you as the center of attention. If you write,"I performed this test and found_____", you have injected yourself into the picture. "This test was performed and the results were_____", keeps the reader's attention directed on the test.

Restraint.

An overstatement from enthusiasm is unlikely to be convincing. It is better to employ terms which state the specific facts. Avoid such words as tremendous, gigantic, or flagrant.

Avoid the following conditions as general rules:

1. Repetition.

Example: It is raining outside. Outside is repetitious, where else would it rain?

2. Trivial details.

Example: Take the ammeter and measure the voltage at points A and B with respect to ground. Corrected: Measure the voltage at A and B with respect to ground.

3. Wordy and loose phrases.

Example: With respect to the B+, avoid placing too great a load on it. Corrected: Avoid placing a heavy load on the B+. Thise example illustrates the fact to be concise.

4. Pompous language.

Example: Sudden heavy loads on the rectifier tube produces electron emmission of great magnitude which is injurious to emitter and anode. Corrected: Heavy loads on a rectifier tube can produce current that will damage the cathode and plate.

5. Vagueness.

Example: Increase the voltage a small amount. Corrected: Increase the voltage from two to five volts.

Sentence Structure

Length

Keep sentences short but not prime as in grade school grammar. Confusion is created if an effort is made to jam too much into a single sentence. A sentence that seems too lengthy should be reviewed with the intent to break it up into separate sentences.

Directness is one of the most important aspects in technical writing. Sentences should carry the message direct without any additional frills

Numbers

The basic rules for technical writing are: 1. If a number is less than 10 it is written out and above 10 it is expressed in figures. 2. Figures are never used at the beginning of a sentence.

Additional Rules and Modifications

1. Figures regardless of size are used before a unit of measurement. (Examples: 2 volts, 8 amperes, 7 ohms)

2. In a sentence where one number follows another, one of the numbers is spelled out. (Example: 10 twelve ampere meters)

3. Sums of money are expressed in figures.

4. Technical style uses decimals instead of fractions as a general rule.

5. If several numbers are used in a sentence they should all be written out or in figures which ever seems the best.

Form

The report should be on one side of 8½ X 11 paper. All margins, top, bottom, right, and left, should be 1 inch. The margin at the top of the first page is from 2 to 2½ inches. If the report is to be bound at the top or bottom the margin must be increased.

Double spacing is usually preferred with about 8 spaces between paragraphs. This method allows notations to be made between sentences and paragraphs. An alternate procedure is to single space between sentences and double space between paragraphs for reports that will not require comments or notations from the reader.

Paragraphs begin with an indentation of 5 spaces. Page numbers are placed in the upper right hand corner or the center of the lower margin if the report is to bound at the top.

The Outline

A report requires a certain amount of organization. If facts and ideas are to accomplish a purpose they must be well organized. Ideas or facts standing alone cannot be used effectively. They must fit into certain areas or grouping of correlating ideas or facts.

The general form to follow is:

(Main Point) I. _____
(Subpoints) A.
B.
1.
2.
a.
b.

The outline of this report is included to serve as an example.

General Rules:

1. Place all material intor no more than four or five main groups.
2. There should never be a single main point. Further examination usually reveals that it does not belong there or the full subject is not covered.
3. There should never be a single subpoint, such as an A without a B, or a 1. without a 2.
4. There should be no overlapping of main or subpoints.

Sample Outline

I. Need of Technical Writing Ability
   A. Purpose
   B. Proficiency
II. Mechanics
   A. Style
      1. Objective
      2. Impersonality
      3. Restraint
      4. Examples
   B. Sentence Structure
      1. Length
      2. Directness
   C. Numbers
   D. Form
III. The Outline
   A. Purpose
   B. Structure
   C. Sample Outline
IV. The Report
   A. Definition and Use of Formal Reports
   B. Component Parts
      1. Title Page
      2. Letter of Transmittal
      3. Table of Contents
      4. Summary or Abstract
      5. Introduction
      6. Body
      7. Conclusions and Recommendations
      8. Appendix and Visual Material
      9. Bibliography

The Report

A formal report can be defined only as one that has certain characteristics with respect to its contents. A report can be veryformal in its manner but not be classified as a formal report.

The formal report usually contains the following:

1. Title page.
2. Letter of transmittal.
3. Table of contents.
4. Summary or abstract.
5. Introduction.
6. Body.
7. Conclusions and recommendations of any.
8. Appendix and visual material.
9. Bibliography.

The formal report is used for many purposes. It can be a progress report, a report on special investigations, a report of some project, or any other type of report that requires considerable organization to present.

The title page contains the following:

1. Subject.
2. To whom the report is made.
3. By whom it was made.
4. Date.
5. A number assigned to the report as is customary in large organizations.

The letter of transmittal is intended as a notice to the reader he has recieved a report as required by a previous discussion, written order, or decision.

A table of contents lists all the headings the report contains with their page numbers. The contents that list the main body of the report are developed from the outline. Main points listed in the contents as a rule follow the order as listed under characteristics.

The summary (abstract) if placed before the body of the report covers the findings in a condensed form. This permits a busy reader to determine what the report covers and if further reading is necessary on his part.

An introduction should cover the following points: source of information, scope, authorization, and acknowledgements. These points can be listed individually or combined in a general structure.

The body of the report requires no further explanation, since it is developed from the outline.

Conclusions and recommendations when used at the end of a report mean facts arrived at on a basis of evidence. It should include no new material but present the facts given in the report.

The appendix lists tables and figures that must be grouped for comparison. Other visual material can be placed in the report at convenient places where their contents are discussed.

A bibliography lists printed sources from which information was drawn. Two forms of listing can be as follows:
Author-------Title--------Publisher-------Date
example:
Martin, Thomas L. Jr., Electronics Circuits, New Jersey:
Prentice-Hall, 1955.

If the reference is taken from the report of an organization it can be listed as the following example:

Radio Corporation of Americ. Semiconductor Division.
Anodized Aluminum or [illegible] for Insulated Mounting of RCA-2n301 and [illegible] Transistors, RCA Application Note-171, N.J., [illegible] 1957.

Conclusion

The formal technical report is a means of communication for reporting the findings of an investigation, a research, or a project to persons or individuals concerned with its results.

Technical writing style emphazises clear, concise, and direct statements formed into a good organization. It avoids any form of writing that leaves doubts to its complete understanding. Descriptions, statements, definitions, and conclusions are based on facts determined in the eport.

The electronic technician student from past experience is familiar with school reports. This report tells the reader (the teacher) what the writer knows. A technical report tells the reader what facts w ere found out from a certain effort.

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